

INDUSTRIAL WASTEWATER TREATMENT

FOOD-PROCESSING INDUSTRY



AS-FLOT (kapacitet 5 do 100 m³/h)

Technology with trade mark AS-FLOT is possible to use for treatment of wastewater in food processing industry. Principle of technology AS-FLOT is based on separation process, which is using for separation of disperse particles from liquid. Polluted particles are flocking with microbubbles of air during flotation, flotation foam (lighter than water) is made during this process. Foam is carried on water level of flotation unit and is skimmed into storage tank. Wastewater contains specific dissolved organic pollution, which makes high concentration of parameters BOD₅, COD, ES, SS. Variable temperature is occurred as well, mainly from meat factories wastewater. We are able to propose, deliver, assemble and operate not only mechanical pre-treatment, but also biological wastewater treatment according demands. Biological wastewater treatment is proposed, if outlet of treated water is flowing into recipient. Communal wastewater is not flowing through mechanical pre-treatment - flotation unit. This wastewater is flowing (after separate mechanical pre-treatment) directly into activation part of WWTP.

Specific usage of technology AS-FLOT in branches

- Meat industry
- Breweries
- Slaughter houses
- Fish industry
- Dairy
- Production of potato chips etc.
- Cheese factories



Standard pollution of wastewater (on inlet of WWTP)		Expected demand on outlet into sewerage network (set up by sewerage pipeline rules of municipality)		
Parameter	[mg/l]	Average [mg/l]	Maximum [mg/l]	Demand for efficiency [%]
BOD ₅	2500	750	1000	70
COD	4000	2000	2400	50
SS	2500	500	800	80
ES	1000	50	100	90



Technological process of wastewater pre-treatment

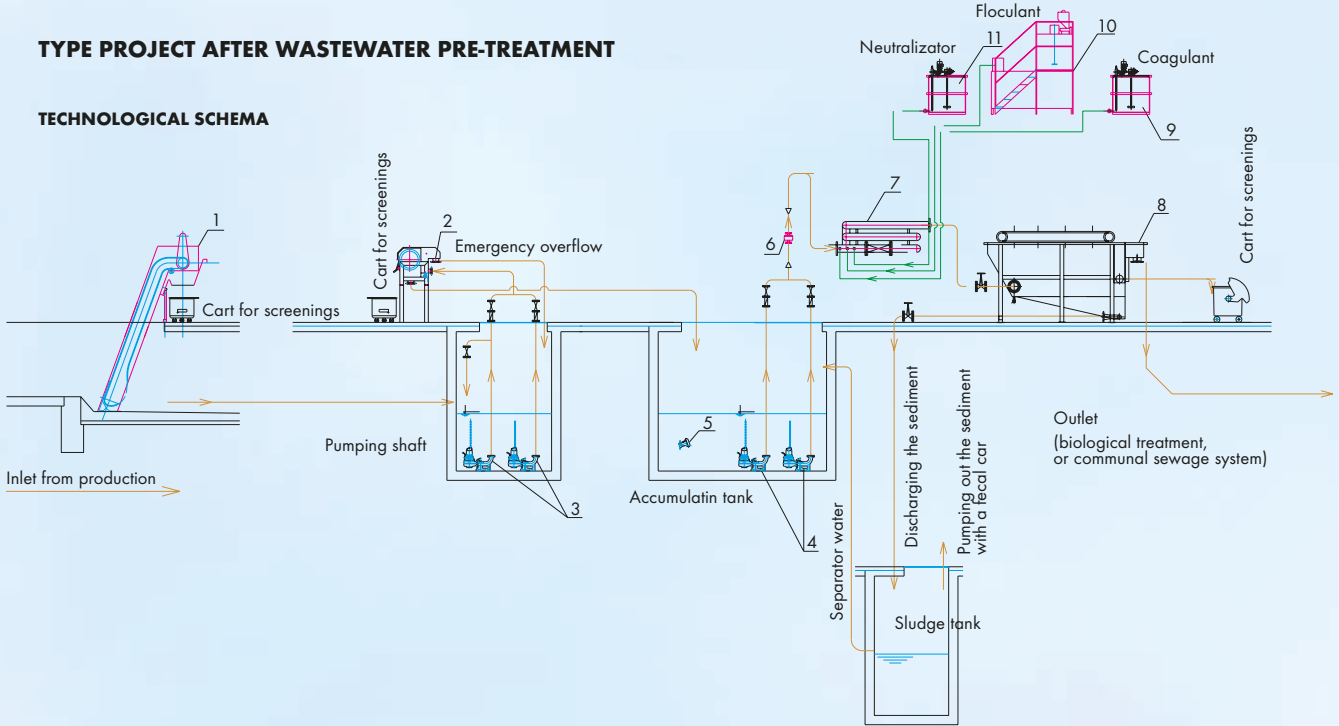


General proposal:

- raw filtration,
- fine filtration,
- chemical pre-treatment of wastewater,
- press-air flotation.

TYPE PROJECT AFTER WASTEWATER PRE-TREATMENT

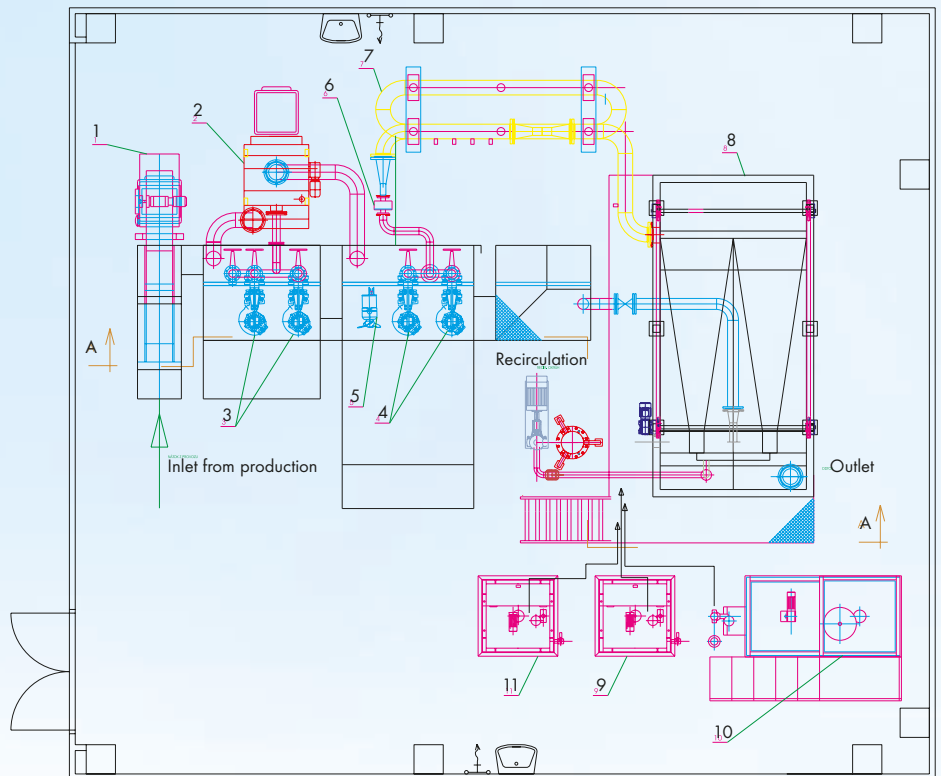
TECHNOLOGICAL SCHEMA



DISPOSITION SCHEME

LEGEND

- 1 - Self-cleaning screens
- 2 - Rotation sieve
- 3 - Sludge pumps
- 4 - Sludge pumps
- 5 - Mixer
- 6 - Flow-rate meter
- 7 - Pipe mixer
- 8 - Flotation unit
- 9 - Chemical unit
- 10 - Chemical unit
- 11 - Chemical unit



Raw filtration

There is necessary to remove mechanical pollution (suspended solids) from wastewater before inlet into flotation unit.

There is possible to propose (in connecting pipe point of view):

- screen basket on inlet into pumping shaft (deep level of sewerage pipes),
- self-cleaning (machine skimmed) screen (into inflow of sewerage pipe).



Screen basket



Self-cleaning screen



Fine filtration

Rotary sieve with filtration gaps 0,5 mm is proposed. Sieve is designed for hot water rinsing. Screenings from sieve is possible to collect in standard dustbin – design is adjusted for this usage.

Rotary sieve



Rotary sieve



Accumulation tank

Wastewater flows (after raw and fine filtration) into underground accumulation tank. Tank is intensively mixed by propeller mixer (mixer is installed with lifting device). Mixing can be made continuously or discontinuously.

Chemical pre-treatment of wastewater

Target of chemical pre-treatment is coagulation of pollution from wastewater into bigger particles, which are separated by flotation process from wastewater. Chemical pre-treatment has two phases: coagulation and flocculation.

Chemical units – flocculant and coagulant



Pipe mixer next to flotation unit



Placing of flotation unit AS-FLOT 10



Placing of flotation unit AS-FLOT 40



Placing of flotation unit AS-FLOT 100



Placing of flotation unit AS-FLOT 3,6



Flotation AS-FLOT

Flotation unit AS-FLOT works on press-air principle. Recirculation and saturation by air is made in so-called perlator.

Press of recirculated water is made by pump, press of air is made by compressor or pressed air from object. Polluted particles are collected on water level, where continuous layer is made. This layer is periodically skimmed by scraper and disposed into collecting flume. Flotation foam flows into container or underground storage tank. Foam is made from extractive pollution, this is grease mainly. Grease is considerable part of pollution in meat factories wastewater. Reduction of grease in high percentage makes as well reduction of other parameters of pollution (i.e. suspended solids, BOD₅, COD).

Outlet from flotation is from upper part of flotation basin. Outflow water is result of pre-treatment process and flows into sewerage system and then into biological treatment. Sediment is collected in the bottom of tank, this sediment is necessary to draw off (by controlled process).

Device can be operated in full automatic regime or some functions can be operated manually. These are – skimming of foam from water level, desludging of flotation basin (outflow into pumping shaft), compressor cycles. Control panel of flotation unit is part of main control panel.



IF REQUIRED, WE PREPARE AN EFFECTIVE TECHNOLOGICAL DRAFT INCLUDING OFFER!

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